

## ABSTRACT

**Introduction:** Speech has always been the most significant medium for the transmission of ideas and throughout the centuries it has been one of the main forces for the human progress. Speech is a critical activity of the stomatognathic system, which utilizes the oral cavity as an instrument. A significant part of speech articulation happens inside the oral cavity and any modification of the structures in that will unfavorably influence speech proportionate to the area and magnitude of change. Inability to form the palatal contours to suit ordinary tongue contact as a rule brings about poor speech. Therefore, for the success or coming to nothing of dental rehabilitation, speech production quality is a vital criterion.

**Keywords:** Spectrographic analysis of speech, Conventional Complete denture, Customized Complete denture, Duplicated denture.

**Aim:** The aim of this study was to assess and correlate the speech pronunciation (linguo-palatal sounds) of subjects with customized palatine rugae duplicated on upper complete denture and subjects with conventional upper complete denture and subjects with the natural dentition upto a duration of 4 weeks after denture insertion.

**Materials and Methodology:** A total of 18 subjects (12 completely edentulous and 6 dentulous) 45-60 years of age were selected for this study. These subjects further divided into 3 groups, **Control group:** 6 subjects, with natural complete dentition. Study group: 12 subjects, who were completely edentulous. **Group A:** were rehabilitated with conventional complete dentures with the palatine rugae duplicated on maxillary dentures. **Group B:** were rehabilitated with duplicated complete dentures without the palatine rugae duplicated on maxillary dentures. Tamil Articulation Test [(USHA.D (1986)] was

regulated to each subject and recorded. A total of 3 Linguo-palatal phonemes in Tamil /d/,/th/,/ja/ were selected for the study. Each recording was taken at 4 stages. The samples with target phonemes were evaluated for Acoustic analysis.

**Results:** All recordings were evaluated and comparison was done using one-way Anova followed by Tukey's post hoc test. At stage 1, subjects without the dentures shows statistically significant decrease in almost all the spectral and temporal parameters as compared to control group. At stage 2, Immediately after denture insertion mostly all the parameters shows improvement from stage 1, specially with the group A as compared to group B but compared to group C both A & B shows statistically significant decrease. At stage 3, denture with replicated palatal rugae shows less adaptation duration to the new dentures as compared to the conventional dentures. At stage 4, few parameters of group B still shows significance with the group A and C, like spectral peak energy, frication and affrication duration.

**Conclusion:** It is suggested to duplicate the palatal rugae in complete denture in light of the fact that the articulation of linguo palatal sounds of complete denture with rugae replication was better than the conventional complete denture without rugae replication.